CLAIMS:

What is claimed is:

1. A drug-loaded microparticle formulation method comprising:

providing a first solution including an amount of a chemical dissolved in a volume of water;

adding a volume of a water soluble drug into said first solution, to form a second solution;

combining a volume of a curing agent solution with a volume of said second solution to form a final solution; and

adding a volume of said final solution into an oil bath forming one or more droplets suspended in said bath.

2. The method of Claim 1, wherein said chemical comprises a chemical taken form the group consisting of polyethylene glycol diacrylate (PEGDA), vinyl pyrrolidove (VP), and poly alginate.

3. The method of Claim 1, wherein said oil bath comprises a vortexed oil bath.

4. The method of Claim 1, wherein said water soluble drug comprises a water soluble drug taken from the group consisting of dexamethasone and actinomycin-D (Ac/D).

5. The method of Claim 1, wherein said curing agent solution comprises 10% w/w 2,2, dimethoxy 2 phenyl acetophenone solution dissolved in vinyl pyrrolidove.

6. A drug-loaded microparticle formulation method comprising:

providing a first solution including an amount of material dissolved in a volume of solvent;

adding a volume of a water soluble drug into said first solution to form a mixture;

combining a volume of a second solution with a volume of said mixture to form a final solution; and

evaporating a solvent from said final solution to form one or more microparticles.

7. The method of Claim 6, further comprising collecting said microparticles from any remaining solution.

8. The method of Claim 6, wherein said material comprises cellulose acetate phthalate (CAP).

9. The method of Claim 6, wherein said evaporating of said solvent proceeds for 24 hours at 30°C.

10. The method of Claim 6, wherein said solvent comprises acetone.

11. A method of applying one or more microparticles to a medical device comprising:

providing a polymer solution;

combining one or more microparticles in said polymer solution to form a suspension;

applying said suspension to a surface of said medical device; and

centrifuging said medical device.

12. The method of Claim 11, wherein said centrifuging of said medical device produces a coating having a relatively smooth surface texture.

13. The method of Claim 11, further comprising, after said providing a polymer solution and centrifuging said medical device, respectively:

coating said medical device with a layer of said polymer solution;

spraying a co-solvent solution over said coating, said coating being completely covered by said co-solvent solution.

14. The method of Claim 11, wherein said applying said suspension comprises selectively dipping said medical device in said suspension.

15. The method of Claim 14, wherein said selectively dipping said medical device comprises dipping only a first end and a second end of said medical device.

16. The method of Claim 11, wherein said polymer solution is ethylene vinyl alcohol (EVOH).

17. A drug loaded medical device comprising a first polymer matrix coated on a surface of said device, said first polymer matrix including one or more microparticles suspended in a polymer solution, each of said microparticles having one or more drugs loaded within said microparticle.

18. The drug loaded medical device of Claim 17, wherein said microparticle comprises a microparticle taken form the group consisting of PEGDA, Ac/D loaded CAP, and VP microparticles.

19. The drug loaded medical device of Claim 17, wherein said microparticle is 0.5 to 2.0 microns (0.1×10^{-4} mm to 0.5×10^{-4} mm) in length.

20. The drug loaded medical device of Claim 17, wherein said polymer solution comprises EVOH.

21. The drug loaded medical device of Claim 18 further comprising a layer of EVOH coated on a surface of said device between said surface of said device and said first polymer matrix.

22. The drug loaded medical device of Claim 17, further comprising a top coat of a co-solvent solution.

23. The drug loaded medical device of Claim 17, further comprising a second polymer matrix including one or more microparticles suspended in a polymer solution, each of said microparticles having one or more drugs loaded within said microparticle, wherein said first polymer matrix is coated on a first portion of said medical device and said second polymer matrix is coated on a second portion of said medical device.

24. The drug-loaded medical device of Claim 23, wherein said first polymer matrix comprises a PEGDA microparticle suspended in EVOH and said second polymer matrix comprises Ac/D loaded CAP microparticle suspended in EVOH.